# SITE DESIGN & TRAVEL BEHAVIOR: A BIBLIOGRAPHY


## REBECCA OCKEN
## SUMMER INTERN
## 1000 FRIENDS OF OREGON



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### ABSTRACT

"Making the Land Use, Transportation, Air Quality Connection" (LUTRAQ) is a national demonstration project to develop methodologies for creating alternative suburban land use patterns and design standards and evaluating their impacts on: automobile dependency; Mobility; air quality; energy consumption; and sense of community. Using the proposed Western Bypass freeway around the Portland, Oregon metropolitan region as a case study, LUTRAQ has (1) identified alternative land use development patterns that reduce travel demand and increase the use of alternative travel modes, and (2) developed reliable transportation modeling procedures that forecast the travel behavior associated with these alternative land use patterns.

This report contains a Bibliography of recently published books, reports, and articles pertaining to transportation and land use.


### TABLE OF CONTENTS



### SITE DESIGN & TRAVEL BEHAVIOR: BOOKS

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Princeton Architectural Press, New York, New York (1993).

Calthorpe's TOD concept presented in a full color spread.

Calthorpe Associates, Transit-Oriented Development Design Guidelines, Prepared for the City of San Diego, California (August 1992).

San Diego developed transit-oriented design (TOD) guidelines in an effort to reduce auto dependence, and create pedestrian oriented neighborhoods. The TOD concept is a clustering of buildings and services around transit stations in order to reduce the need for the automobile and promote walking and transit use. The close proximity of buildings and services creates a walkable environment, comfortable to pedestrians.

The guidelines include design criteria for building orientation. Buildings are to be oriented toward the street and sidewalk, rather than parking lots. Primary building entrances are also oriented toward the pedestrian streets rather than parking lots. "The pedestrian life of a building is at its entry. If the entry orients to parking lots, it steals the activity and life from the street, the main pedestrian route, while signaling that auto access is preferred." (pg. 42)

Infill is also encouraged where existing viable uses are separated from the Street by a large parking lot. "Orienting buildings to public streets will encourage walking by providing easy pedestrian connections by bringing activities and visually interesting features closer to the street, and providing safety through watchful eyes and activity day and night." (pg. 19)

The guidelines recommend minimal building setback to bring buildings close to the street and the pedestrian. "This defined and close edge enliven commercial areas by encouraging window shopping and streetside activity" (pg. 40). Larger setbacks of up to 20 feet are permitted for office buildings and streetside outdoor cafes in core commercial areas.

According to the authors, a varied and interesting building design is a key feature in creating a pedestrian environment. The blank wall is disallowed. "Buildings should incorporate design elements at the street level that draw in pedestrians and reinforce street activity." (pg. 41)

Parking lots located to the rear or side of the building if on a pedestrian oriented street is encouraged by the guidelines. "TODs offer the opportunity for a more diverse patronage, both from the traditional auto/anchor and from the walk-in neighborhood and transit activity." (pg.39)

Cervero, Robert, Suburban Gridlock, Rutgers University Press, New Brunswick, New Jersey (1986).

This book discusses the rapid growth of suburban office development and its impact on the existing transportation network. Cervero outlines the many issues related to the large-scale business park and examines possible approaches of traffic management, including site design.

The methodology used in this book is a balance of empirical and interpretive research. A literature review forms the basis of the work. A national survey was conducted in 1984 of suburban office developers concerning land use, tenant, and mobility issues. Case studies were also carried out consisting of primarily the larger and more diverse suburban office developments. Interviews with key public and private sector informants along with agency and company reports provided background for the case studies.

Cervero observes the importance of building orientation as an element of travel behavior. "Building placement influences on-site movement and mode choice... All too often, individual structures are located within land parcels without reference to neighboring buildings or properties. As a result, many office buildings tend to be introverted, focusing on themselves rather than the complex as a whole, producing long walking distances." (pg. 51)

"Compounding matters even more, some office parks lack any physical integration or direct provisions for foot traffic. A normally casual walk from an off-site bus stop to one's office, for instance, might be mired by a sea of parked cars obstructing an otherwise clear passageway. Where few on-site sidewalk and pedestrian amenities are provided, transit and foot travel in general are relegated to a second-class status." (pg. 53)

Cervero details how availability of parking and its on-site placement have a significant impact on travel behavior. "The geographic proximity of employee parking to building entrances relative to how close bus stops are ... can be an important barometer of modal preferences. Although by themselves specific design treatments might appear somewhat trivial, their collective influences can be every bit as important as the more macro-scale decisions." (p-. 61)

Cervero addresses the issue of proximity of bus stops to the building. "The siting of convenient bus stops is particularly important if transit users are to receive a fair shake in relation to motorists. (The) average walking distance between main building entrances and on-site bus stops is around 480 feet, over four times as far as the average parker has to walk to her desk. For office parks without any on- site transit services, the average walking distances from the nearest off-premises bus stop to the main building entrance is nearly two-thirds of a mile, roughly 30 times farther than most motorists have to jaunt." (pg. 71)

The usual free and abundant parking provided with the office park is costly, financially and environmentally. "(S)uburban parking lots can actually gobble up as much area as the buildings they serve and cost large businesses well over $5 million in capital outlays." Parking lots create long walking distances to building entrances, "not to mention the isolating, patulous effects they have on building placements and access to street-side pathways and transit stops." (pg. 65)

Lineal footpaths decrease walking distance within the office park by a factor of two from the common serpentine system. Office park developers are superimposing more direct routes for pedestrians to enhance foot traffic within the complex. "Not only have more direct trails been provided, the dissociation of foot and vehicular traffic has enhanced both pedestrian safety and the walking, experience." (pg. 64)

Cervero promotes a stronger public-private partnership in rethinking the design approach taken for the suburban office park.

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Engwicht, David, Towards an Eco-City: Calming the Traffic, Envirobook, Sydnev Australia (1992).

Expansion of the report "Traffic Calming" by Citizens Against Route 20 (CART), which was a successful alternative proposal to a local road expansion. Primary functions of the city are "maximising, exchange and minimizing travel." Thoughtful approach in detailing the impacts of the auto on the urban world both to the individual and society. Offers suggestions for rebuilding the city.

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Definitive source for the history of the suburbs.

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Critique of existing land use that can no longer provide an environment conducive to human habitat. "This book is an attempt to discover how and why it happened, and what we might do about it."

Liebs, Chester, Main Street to Miracle Mile, New York Graphic Society/Little, Brown and Company (1985).

Historical/architectural perspective on the design of business/building influenced by the auto e.g., drive-ins, grocery stores, gas stations.

Lynch, Kevin, The Image of the City, M.I.T. Press, Cambridge, Massachusetts (1960).

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Nadis, Steve and James J. MacKenzie, Car Trouble, Beacon Press, Boston, Massachusetts (1993).

Solid overview of the problems caused by the car - environmental, economic, and extreme waste of land and other natural resources. Offers a critical look at the alternatives to the combustion

engine and gasoline driven engines.

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A fundamental data source referred to in many transportation related studies. A wealth of empirical urban data regarding transportation and land use collected from 32 major international cities. "The basic contention of this book is the need to reassert the importance of those who plan transport infrastructure and land use in cities as a way of addressing ... the central question of how to make a city less dependent on the automobile."

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Noted "Urbanologist" on how people use urban space. Interesting perspective following some lengthy research periods using hidden cameras to observe space, people and activities in Manhattan, New York.

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(1993).Overview of the Oregon land use plan and Goal 12.

Compares Portland's dense, Overview of the Oregon land use plan and Goal 12. Compares Portland's dense mixed use urban core, transit mall/lightrail systems, and limited parking to Hillsboro which has good intentions, but poor implementation practices. As a result, Portland has seen an increase in downtown employment without an increasing parking space. Explains LUTRAQ alternative/benefits.

Beimborn, Edward, et al., Guidelines for Transit Sensitive Suburban Land Use Design, U.S. Department of Transportation, Washington, D.C. (1991).

This report offers a new design approach for suburban development in support of travel alternatives to the automobile. "The guidelines address all levels of planning and the design process including overall planning issues, such as the location and designation of transit corridors, to individual site decisions, such as pedestrian access to buildings." (pg. 2)

The information used for this report was gathered from a large number of sources, including both technical and design guidelines. Site visits were made and interviews conducted with planners involved in the area.

The report relays design standards for pedestrian travel in relation to transit stops. The authors found that placement of transit stops in relation to buildings is vital in attracting transit ridership. "Pedestrian use of transit falls off rapidly when offices or residences are located more than 1/4 mile from a stop." (pg. 62)

According to the authors building orientation is conducive to transit ridership only if the design is sensitive to walking distances. The guidelines suggest the location of building entrances to be as close as possible to transit stops. "Nearly all trips begin in a building and end in a building. To maximize the potential for transit, building entrances and transit stops should be located in close proximity to each other. Moreover, there should be a clear, direct path between building and transit stop locations. While this seems obvious, it is seldom done in conventional suburban development." (pg. 79)

The report recommends specific design features to create a pedestrian friendly site and promote transit ridership. "There are various ways to provide good access to buildings especially in the site design phase of development. Ideally, buildings and their entrances can be directly located next to transit stops. This may mean locating parking or open space behind or beside a building rather than in front of it. Buildings themselves could be set perpendicular to the transit corridor rather than parallel to it. This allows for direct transit access to a building, as well as access to other buildings. It is also beneficial to cluster buildings together rather than designing in a "strip mall" fashion. This permits shorter and safer travel for pedestrians between buildings. Finally, pathways should be provided from all transit stops to surrounding buildings for safe and reasonable access. People cannot be expected to walk across open land without pathways, especially during inclement weather." (pg. 79)

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"Most of our daily trips are less than five miles in length. Short trips such as these provide opportunities to reduce 'cold start' emissions. Starting a vehicle that has not been driven for about one hour produces a significant amount of tail- pipe emissions because the catalyst in the catalytic converter is not yet warm enough to fully combust the exhaust gases. These are often referred to as 'cold start' emissions. The cold start typically produces more than one-half of the total emissions from a vehicle trip under 20 miles in length, and 78% of the emissions from a trip of two miles or less. Reducing the number of short vehicle trips can thus help reduce emissions from cold starts. The location and configuration of land uses in part determines the distances people travel to reach employment sites, stores, houses, and other destination. These factors also influence which mode of transportation they choose - car, vanpool, bus, train or trolley, walking, or bicycling.

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A site plan for an emerging transit-oriented development in suburban metropolitan Portland, Oregon.

Calthorpe Associates, Transit-Oriented Development Impacts on Travel Behavior, San Francisco, California (August 1992).

Compilation of studies that address travel behavior in relation to site design. All studies included support the concept that mixed-use, higher density development will decrease auto dependency.

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Crane, Randall, Access and Travel: On Trip Frequency and Mode Split in the New Suburbs, University of California, Irvine, California (June 1993).

Questions the well argued success of TOD without empirical evidence. Presents model in support.

Daniels, P.W., "Transport Changes Generated by Decentralized Offices: A Second Survey," Regional Studies 15, no. 6 (1981).

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Ecotec Research and Consulting Ltd. and Transportation Planning Associates, Reducing Transport Emissions Through Planning, Department of the Environment, HMSO, London (1993).

Fehr & Peers Associates, Effect of Stockton's Proposed Suburban Village Center Development on Travel Mode Choice and Auto Use, Prepared for Mintier Associates (January 1992).

Two computerized cities are compared to two existing cities to determine accuracy of ITE standards. Assessed trip making and transportation mode choices of two different community types: (1) suburban village center; and (2) typical suburban community (Friedman study). The changes in mode choice and resulting changes in VMT, were estimated using data from past travel mode studies and 1990 census data. This hypothetical data is compared to two existing cities to determine accuracy of ITE predictions for mode split. Findings conclude that the village center reduces vehicle use. Percent varies among studies but a change is seen in all studies supporting the more condensed, mix-use land use. Finds the ITE standards inaccurate.

Fisher, Kimberly M, Transit Sensitive Design Issue Paper, Urban Land Institute, Research Department, Washington D.C. (1993).

Demographics to explain change in travel modes. Addresses need for further study in site design and its relation to travel behavior.

Frank, Lawrence, A Guide to Literary Sources Pertaining to the Interactive Nature of Land Use, Urban Design, and Transportation, College of Architecture and Urban Planning, University of Washington, Seattle, Washington (December 1991).

Fregonese, John and John McLaughlin, The City of Ashland Downtown Plan, Ashland, Oregon (July 1988).

Friedman, Bruce, et al., The Effect of Neotraditional Neighborhood Design on Travel Characteristics, Presented at the 1992 ITE District Annual Meeting, Anchorage, Alaska (July 1992).

Empirical evaluation of the potential effect of neotraditional community design on household trip rates relative to what one could expect when compared to travel characteristics of standard suburban PUDs. Selected two existing neighborhoods - older, established, neotraditional vs. typical suburban track housing. Found the neotraditional neighborhood had higher alternative mode use than the suburban neighborhood. "The findings show that households in newer suburban tract communities exhibit dramatically higher drive alone rates, whereas households in traditional communities exhibited significantly higher use of alternative travel modes." Also shows that the ITE expectations are outdated.

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Hinshaw, Mark, Design Objective Plan: Entryway Corridors, Prepared for the City of Bozeman, Montana, Hough Beck & Baird Inc., Seattle, Washington (1992).

In 1990, the City of Bozeman adopted new zoning codes to address the rapid, and unsightly development of strip malls within the city. The Design Objective Plan is a framework for all new development within the city. The objective is to restore the welcoming, community environment that was lost with the abundant construction of strip malls on the main arterials into downtown. Standards were developed with a degree of flexibility subject to design review.

The plan notes the changing role of the traveler from driver to pedestrian and the inability of the built environment to meet this transition. "Very few developments have recognized that once people park their cars, they are immediately pedestrians, with completely different needs ... When walking, people need safe, convenient and inviting route's of travel, with clear directional signage." (pg. 10)

The plan encourages a visually appealing streetscape by way of minimizing building setback, and suggests that existing complexes with a large setback develop "out buildings" close to the street that contain shops, services, and restaurants. Parking areas located beside or behind new buildings are also recommended in order to allow building placement closer to the street and the expanses of parking to be broken up. (pg. 42)

A safe, convenient and more appealing pedestrian environment is developed by clearly designating pedestrian routes between the street, parking area, and the main entrance using vegetation, and raised walkways, among other suggestions. (pg. 17)

The plan is aesthetically focused, but an informative source in implementing a pedestrian environment, by way of building orientation. The guidelines have been successful in revising the design of larger retail buildings. Most recently, a newly constructed Wal-mart located its parking to the side and rear of its building, softened the landscaping, and added pedestrian amenities.

Holtzclaw, John, Explaining Urban Density and Transit Impacts on Auto Use, Presented by Natural Resources Defense Council and The Sierra Club, State of California Energy Resources Conservation and Development Commission (April 1990).

"The object of this study is to evaluate the relationship between the density of population and neighborhood business and availability of transit with residents' use of private automobiles." Found that doubling density will reduce VMT by as much as 30%. Unique to this study is its use of odometer readings from mandatory auto inspections. Holtzclaw notes that the benefits from high density development cannot be seen unless other transportation alternatives are available. "This study provides a basis for predicting the driving behavior of residents as a consequence of an area's density, neighborhood business, and transit."

Hooper, Kevin G, Travel Characteristics at Large-Scale Suburban Activity Centers, Transportation Research Board, Washington, D.C. (October 1989).

"The principal objective of this project is to develop a comprehensive data base on travel characteristics for various types of large-scale, multi-use suburban activity centers that have been developed recently." Data collected via observation, surveys (workplace, intercept) and daily trip diaries. "Two basic issues that current data on suburban activity centers fail to adequately address are: what are the travel characteristics (internal and external) of trips generated by large scale suburban activity centers? and second, what is the effect of placing a new land use within an existing suburban activity center on current internal and external SAC travel characteristics?"

JHK & Associates, et al., Analysis of Indirect Source Trip Activity, Draft Final Report #A132-094, Prepared for California Air Resources Board (June 1993).

Survey of 5 regional shopping centers in California. Case studies based on density of area and frequency of transit service. According to JHK, parking pricing had the biggest impact on level of transit use. Found pedestrian activity, to be highest in urban areas with transit accessibility. "Found a much higher rate of transit use and walking at a shopping center located within the central business district of a major urban area. This center is well-served by both bus and rail transit, has good pedestrian accessibility and somewhat limited parking. The rate of automobile travel to the urban center was found to be 75% lower than auto travel to a comparable shopping center located in a suburban area with limited bus service and poor pedestrian access." (CARB report). Includes annotated bibliography and useful stats regarding travel behavior.

JHK & Associates, et al., Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas: Research Report, Transportation Research Board, Washington, D.C. (June 1987).

The object of this report is to provide a guideline for the "implementation methodology to assist planners, designers, decision-makers, and the public in providing a convenient and safe pedestrian movement for suburban areas having a heavy traffic corridor with adjacent pedestrian magnets, and in rural area that are in, or likely to be in, transition to suburban areas." "The extent to which people walk for shopping and personal business depends largely on land use characteristics ... Data reviewed in this project show that some convenience oriented retail stores (e.g., drug stores) in suburban activity centers can generate up to 90% of their patronage from foot traffic." "Sprawling low-density development with large parking lots and lack of focused activity makes utilitarian walking generally impractical in these areas." "One of the overall conclusions from the research is that pedestrian planning cannot be conducted in isolation from other planning elements. Rather, planning for the pedestrian must be integrated with the entire process of planning, design,

and implementation by the public and private sectors and effectively advocated within that process."

This two volume report presents guidelines for the planning, design and implementation of pedestrian facilities in suburban and developing rural areas.

The report addresses the problems the pedestrian must confront in suburban development, including site design. Eight different site types were assessed, from which the authors developed the necessary elements for a "pedestrian-sensitive" site design. These include a minimum number of conflict points between pedestrian and motor traffic, and a minimum impedance to the pedestrian in terms of the amount of time, distance, or energy expenditure.

The findings of the report are based on information gathered from interviews with practitioners, and an in-depth literature search. Observation at specific sites establish case studies included in the report, and an inventory of pedestrian facilities nationwide aided in the development of pedestrian-sensitive criteria.

One of the site design types discussed in the report is the regional shopping center. "While it is true that many other physical and financial considerations drive shopping center development decisions, pedestrian access is a more important design element than typically acknowledged." (pg. 36)

Through observation of travel behavior in regional shopping center parking lots, the authors found that designated pedestrian aisles were ineffective and under used unless the pedestrian was being guided between major destinations directly to and from the building entrances. (pg. 36)

The study also reported that on average, less than 2 percent of the trips made to a regional shopping center were by walking. However smaller, neighborhood centers experience a slight increase of those arriving by foot and, in some cases, 15 to 20 percent arrive by foot. "The extent to which people walk for shopping and personal business depends largely on land use characteristics ... Data reviewed in this project show that some convenience oriented retail stores (e.g., drug stores) in suburban activity centers can generate up to 90 percent of their patronage from foot traffic." (pg. 9)

Kenworthy, Jeffery and Peter Newman, Learning from the Best and Worst: Transportation and Land Use Lessons from Thirty-Two International Cities with Implications for Gasoline Use and Emissions, School of Environmental and Life Sciences, Murdoch University, Perth, Western Australia (undated).

Jones, Peter, Understanding Travel Behavior, Oxford University Transportation Studies, Aldershot-Hampshire, England (1983).

Kulash, Walter, Neotraditional Town Planning, "Will Traffic Work". Session Notes, Planners Training Service, Chicago, Illinois (March 1990).

Compares street networking of neotraditional town design (NTD) with conventional street design. His discussion supports NTD using both qualitative and quantitative arguments. Also in favor of mixed use by locating origins and destinations in close proximity. "Perhaps the single biggest underlying factor in the pedestrian-friendliness of the NTD approach is the concept that land uses

are inter-woven in an intimate mix. This is something that, try as we might, we are simply not achieving in our so-called mixed-use developments. From a traffic point of view, even in the best of our mixed-use developments, we are afraid of putting origins and destinations together. It raises the interesting question of what market force is driving this separation."

LaBaugh, William, and Michael Demetsky, Pedestrian Planning in Suburban Areas: A State of the Art Review, Virginia Highway & Transportation Research Council, Charlottesville, Virginia (1974).

Lo, Yuan-Heng Patrick, Land Use and Transportation Links: An Empirical Study of Suburban Employment Centers, master's thesis, University of California, Berkeley, California (May 1990).

Supports Cervero's argument that plentiful, free parking will impede transit use and promote auto dependency. Uses modeling to show that mixed use, high density land use will promote alternative modes.

Maring, G.E., "Pedestrian Travel Characteristics," Highway Research Record 406, Highway Research Board, Washington, D.C. (1972).

Summation of a survey taken in the Washington, D.C. area regarding pedestrian travel characteristics including breakdowns by trip length, age, sex, purpose, income group, day of week, and factors influencing the decision to walk.

Maryland-National Capital Park and Planning Commission, Part II-. Transit and Pedestrian Oriented Neighborhood Study, Silver Spring, Maryland (March 1993).

"This paper identifies the characteristics that distinguish transit and pedestrian oriented neighborhoods from other patterns of development." The report is divided into two sections. The first describes 11 existing neighborhoods and their travel characteristics. The second discusses the application of pedestrian friendly design principles and their implications. The goals of the effort are to preserve the city center, foster creation of new neighborhoods, improve pedestrian circulation, and increase access to transit. Neighborhoods are compared based on age of development and densities. Comparison found that residents of the older traditional neighborhoods with higher densities, used alternative modes of travel more often than the newer neighborhoods. The plan calls for building orientation to facilitate pedestrian movement between buildings and reduce the walking distance between buildings and transit stops located along streets and roads. "Pedestrians are the lifeblood of our urban areas, especially in the downtown and other retail areas. In general, the most successful shopping sections are those that provide the most comfort and pleasure for pedestrians."

McNally, Michael and Sherry Ryan, A Comparative Assessment of Travel Characteristics for Neotraditional Developments, Institute of Transportation Studies, University of California, Irvine, California (January 1993).

Uses hypothetical street networks and conventional modeling techniques to support the concept of improved accessibility to decrease auto dependency. Siting, densities, transportation facilities are all similarly addressed. VMT and mean trip length reductions with better street efficiency.

Municipality of Metropolitan Seattle, Metro Transportation Facility Design Guidelines, Seattle, Washington (1985).

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MSM Regional Council, The Impact of Various Land Use Strategies on Suburban Mobility, Princeton, New Jersey, (November 199i).

Using Trans CAD for data analysis, the study draws four main conclusions: "(1) Mixed-use centers can produce significant regional transportation benefits; (2) Mixed-use centers are a viable concept for suburban centers; (3) Mixed-use centers, through design and function can have tangible local transportation benefits; (4) Promoting strong urban growth along with suburban mixed-use centers gives the best regional results."

Ministry of Housing, The Right Business in the Right Place, Department of Information and International Relations, The Hague (April 1991).

A plan to reduce car use that uses a "mobility profile" on each business to determine transportation needs and then matches those businesses to appropriate locations according to relative accessibility by road and by transit. The mobility profile represents the transportation demand. The accessibility profile meets the demand by siting a business in a location which will have the necessary accessibility to meet the mobility needs of the business. Industry, for example, will have different mobility needs than retail and should be located as such.

Neels, K., et al., An Empirical Investigation of the effects of Land Use on Urban Travel, The Urban Institute, Washington, D.C. (1977).

1000 Friends of Oregon, The LUTRAQ Alternative/Analysis of Alternatives. An Interim Report, Portland, Oregon (October 1992).

1000 Friends of Oregon, The Pedestrian Environment, Portland, Oregon (December 1993).

This report establishes correlations between travel behavior and the quality of the pedestrian environment. Using travel survey data, the authors show that households in pedestrian friendly neighborhoods walk and bicycle four times as much, and ride transit three times as much, as households in "pedestrian hostile" neighborhoods. Regression analysis shows a 10% difference in VMT per household between the pedestrian friendly and pedestrian hostile neighborhoods.

Owens, Susan, Cities and Sustainability: The Energy Dimension, University of Cambridge, Cambridge, England (June 1993).

"The objectives of this paper are to explore critically the concept of 'urban sustainability'; to relate this concept to issues of energy supply, demand and efficiency; and to consider the energy and environmental implications of different forms of urban development, from the scale of individual buildings to that of city regions. The focus of the paper is on the role of land use planning in promoting sustainable urban energy flows." Owens supports the need for higher densities; however, she notes that high densities alone will not reduce auto dependency. Mixed-use is needed to gain greater accessibility, decentralization of some jobs to residential areas to create the urban village.

Owens, Susan, and David Cope, Land Use Planning Policy and Climate Change, Department of the

Environment, London, HMSO (April 1992).

Owens, Susan, “The Good, the Bad and the Ugly: Dilemmas in Planning for Sustainability,” Town Planning Review, 64(2) (1993).

Owens, Susan, Can Laid Use Planning Produce the Ecological City ?, Expert Meeting on the Ecological City, Chateau De La Muette, Paris (May 1993).

“This paper introduces three themes central to the concept of 'ecological cities': it considers the meaning of environmentally-sustainable urban development; it explores the relationship between the use and development of land and environmental change; and it discusses questions of agency, in particular the potential and limitations of land use planning as a policy instrument for moving towards more sustainable patterns of urban development. Its objective is to provide a conceptual framework for urban environmental issues related to land use and to identify important areas for further exploration.”

Perfater, M.A., and M.J. Demetsky, Pedestrian Attitudes and Behavior in Suburban Environments, Virginia Highway and Transportation Research Council, Charlottesville, Virginia (December 1974).

Defines the suburban pedestrian and identifies key factors relative to their needs and acceptance of various types of pedestrian facilities. “Walking frequency increases as the number of accessible activities increases.”

Pivo, Gary, et al., A Summary of Guidelines for Coordinated Urban Design, Transportation and Land Use Planning, with an Emphasis on Encouraging Alternatives to Driving Alone, Prepared for the Washington State Transportation Commission, University of Washington, Seattle, Washington (August 1992).

This report is a summation of urban development guidelines that address the interactive relationship among transportation planning, land use planning, and urban design. It is a working document cataloguing design standards.

Several of the guidelines relating to site specific planning were taken from the Snohomish County Transportation Authority (see below). Guidelines promoting pedestrian environments include: direct and safe pedestrian connections to transit stations, reduced setbacks for retail, locating employment and multi-family land uses on streets with bus facilities to encourage transit use, parking behind or to the sides of buildings on transit routes, and front building entrances oriented toward the street.

This report is useful in its organization of guidelines by category as well as noting the many jurisdictions that are calling for pedestrian/transit site-design measures.

Portland, City of, Portland Future Focus: Strategic Plan, Portland, Oregon (August 1991).

Project for Public Spaces, The Effects of Environmental Design on the Amount and Type of Bicycling and Walking: National Bicycling and Walking Study FHWA Case Study #20, Submitted to: Federal Highway Administration (1993).

Excellent discussion of street design, skywalks, transit malls, pedestrian malls; states reasons of

what works and what doesn't. Thorough assessment of needs to accommodate pedestrian/bike. "A key component in creating an active downtown street is the design of building bases and the type of ground floor uses...Blank walls, tinted or reflected glass, and a generally harsh environment do little to encourage walking and window shopping in a downtown."

Pucher, John, "Urban Travel Behavior and the Outcome of Public Policy: The Example of Modal-Split in Western Europe and North America," APA Journal (Autumn 1988).

"Differences in travel behavior arise largely from public policy differences, especially from differences in automobile taxation. In addition, variations in transit subsidies, land use controls, and housing programs significantly influence travel choices, although sometimes only indirectly."

Puget Sound Council of Governments, Vision 2020: Growth Strategy and Transportation Plan for the Central Puget Sound Region, Seattle, Washington (April 1990).

Puget Sound Council of Governments, The Impacts of Vision 2020 Alternatives on Housing Costs in the Puget Sound Region, Seattle, Washington (June 1990).

Rabinowitz, Harvey, et al. The New Suburb, U.S. Department of Transportation, Washington, D.C. (1991).

Quantitative and qualitative assessment of potential new suburban designs. To provide a future in which transit plays a role, those involved in transit must make the others, who are largely responsible for land-use design, aware of the benefits of transit and create a vision of the future which includes a broad set of transportation alternatives" (53).

Rabinowitz, Harvey, et al., Market Based Transit Facilities, Technology Sharing Program, U.S. Department of Transportation, Washington, D.C. (1989).

"The purpose of this report is to provide planning and design guidance for many types of transit stations, stops and terminals. The underlying philosophy of the guidelines provided in this document is that transit services and facilities should be designed from a market based viewpoint. The market - people and the activities that transit serves - is the major determinant of the success of transit and the success of private, commercial activities to be developed jointly with transit."

Rajan, Sudhir, Socio-Spatial Patterns of Vehicle Ownership in Southern California: A Preliminary Study, University of California, Los Angeles, California (1993).

Discusses the social impacts of the air pollution policies in California in relation to older cars. A voluntary program was set up to pay owners to scrap their cars if older than 1982. This new demand and sales for used cars will alter their sales market.

Recker, W., Empirical Analysis of Household Activity Patterns: Final Report, Institute of Transportation Studies, University of California, Irvine, California (1980).

Replogle, Michael, Transportation Conformity and Demand Management: Vital Strategies for Clean Air Attainment, Environmental Defense Fund (April 1993).

Rice Center for Urban Mobility Research, Houston's Major Activity Centers and Worker Travel Behavior, Houston-Galveston Area Council, Houston, Texas (1987).

Roberts, John and Peter Newman, The Effects of Traffic Calming on Travel Demand (undated).

Uses data from Kenworthy & Newman "Learning from the Best and Worst" to discuss traffic calming measures. Points out that cities with higher road speeds than transit speeds have a higher private vehicle demand/use. Also indicates a higher amount traveled where speeds are higher. Successful traffic calming measures, according to the authors, should reduce speeds, thereby reducing demand and amount traveled. Cites the impact of traffic calming for seven international cities.

Rodale Press, in coordination with Bicycling, Prevention, and Runner's World magazines, Pathways for People, Emmaus, Pennsylvania (1993).

A survey was taken of the readers of the listed magazines with the objective of determining what it would take to increase the frequency of bicycling, walking and running. Found that if accessibility and safety of facilities increased so would these other modes of travel. "Half of America's 82 million cyclists say they would commute to work by bicycle if there were safe bike lanes on roads and highways or separate designated paths." "The survey found that for 76% of all respondents, driving alone is currently the primary method for commuting, running errands and getting around; walking and bicycling were primary modes of transportation to just 5%. But if all things were equal and good facilities for each option were available, only about 51% of respondents would chose driving alone and 13% would choose walking or cycling." Cites 16 case studies of cities nationwide that have successfully increased accessibility for other travel modes.

Ryan, Sherry and Michael McNally, Accessibility of Neotraditional Neighborhoods: A Review of Design Concepts, Policies, and Recent Literature, Institute of Transportation Studies, University of California, Irvine, California (September 1992).

Historical overview of suburban development. Identification of design trends in suburban development. Includes a review of current literature regarding neotraditional neighborhoods.

Schneider, J.B., and J.R. Beck, Reducing the Travel Requirements of the American City: An Investigation of Alternative Urban Spatial Structure, Research Report No. 73-1, U.S. Department of Transportation, Washington, D.C. (1973).

Snohomish County Transportation Authority, A Guide to Land Use and Public Transportation for Snohomish County, Washington, U.S. Department of Transportation (December 1989).

The purpose of the guidelines created for this report is to promote alternative transportation modes by way of changing current land use patterns. The changes are based on "public transportation compatible" criteria, which include new travel patterns based on land uses, road networks, pedestrian facilities and site design. The guide is written for local jurisdictions, developers, community groups and land owners working with transit operators to realize a reduction in auto dependence. (pg. 1-1)

Sno-Tran supports building orientation toward public transportation facilities. "People are not motivated to use public transportation services if buildings do not provide convenient, quality access - even if buildings are located close to the bus route or rail line. Building entrances and paved walkways need to lead directly to a bus stop, a park-and-ride lot or a station. " (pg. 3-3)

The report also states that the current design of shopping centers is not conducive to transit ridership. "Shopping centers very seldom provide any attractive way for pedestrians to reach the building entrance from a bus stop without a lengthy walk through a parking lot or across landscaping. Bus operators are hesitant to enter these parking lots where buses can be tied up in traffic." (pg. 3-3)

Walking distance is an important variable of transit ridership. The measured distance is rarely a straight line, but must account for the actual walking distance given the many obstacles a pedestrian must confront. The distance of the pedestrian trip can influence mode of travel. "The closer both the beginning and end of a trip are to a bus stop, the greater the likelihood of people using public transportation. For example, even high-density activities do not generate riders if public transportation is difficult to reach." (pg. 3-4)

State of Oregon, Department of Land Conservation and Development, Transportation Planning Rule, Salem, Oregon (May 1991).

State of Oregon, Department of Transportation, Oregon Transportation Plan, Salem, Oregon (1992).

State of Oregon, Department of Transportation, Transportation Planning Rule Best Management Practices, Salem, Oregon (August 1992).

The purpose of this report is to provide information and examples of ordinance provisions which could be used by local governments in adopting more pedestrian friendly land use plans, zoning, and subdivision ordinances.

Stevens/Garland Associates, Inc., Mode Enhancement Through Land Use Design, County of San Diego Department of Planning and Land Use, San Diego, California (1991).

"If alternative mode use is to be encouraged in the future, development planners must do more than simply graft alternative transportation amenities and services onto a land use decision-making system whose very design discourages the use of such modes; they must make certain that the built environment itself is not an impediment to alternative mode use.

Terry Lassar Consulting, Study of Northgate Mall and National Design Trends in Redevelopment of Shopping Centers, Seattle, Washington (1993).

The Northgate Area Comprehensive Plan proposed site design standards to increase pedestrian accessibility, particularly within the Northgate regional shopping center. Opposition to the proposal from the shopping center developer prompted the City of Seattle to research the economic feasibility of imposing design standards.

This report is in response to the City's request for more information on site design standards imposed on regional shopping centers. The author, therefore, focused her report on successful examples of shopping center site design which increased pedestrian activity and transit ridership, yet maintained, or increased, their economic attractiveness to retailers.

Lassar cites several malls nationwide that have successfully instituted design standards. Bellevue Square in Bellevue, Washington has a minimum setback standard which was a security concern for an anchor store, Rather than lose a prospective anchor, two smaller restaurants were given the

street front sites. According to the owner of the mall, "leasing these spaces has grown easier and the assortment of small shops, facing the plaza and main entryway to the mall generate a good amount of pedestrian movement."

Bellevue Square is phasing in further building setback requirements to comply with the City of Bellevue's design guidelines. "When the mall is eventually expanded in subsequent phases, the parking area, which has essentially preserved a developable parcel, becomes the pad for new retail development. The new development must then build out to the street and provide the requisite pedestrian-oriented frontage."

Lassar address a common fear among retailers that the loss of a street viewed parking lot will mean the loss of a customer. "(S)hoppers don't need to be assured parking is available. (T)his can be accomplished through a comprehensive parking program with a well designed signage package that clearly identifies parking areas and directs shoppers to available spaces."

Rockville, Maryland recently instituted new zoning for an auto oriented, retail center developed as a strip mall. The plan calls for 50 percent of a building to abut the street edge. "The former set back line is now the required build-to line. The program is incentive-based. Developers opting to build beyond a threshold density, must comply with design review and a series of enhanced design requirements."

Tri-Met, Tri-Met Strategic Plan: Pursuing a Shared Vision, Tri-County Metropolitan Transportation District of Oregon, Portland, Oregon (December 1991).

Tri-Met, Planning and Design for Transit, Tri-County Metropolitan Transportation District of Oregon, Portland, Oregon (March 1993).

The purpose of this report is to develop land use patterns that protect the "future livability and mobility" of the Portland area, yet accommodate the tremendous growth the region is now experiencing. It recognizes the strong connection between land use and transportation with the concept of "transit sensitive development." This type of development includes higher densities, mixed use, and pedestrian oriented design.

The plan specifically addresses building orientation. "Set backs should reflect the desired character of the area and bring buildings to the sidewalk or within 10 feet. Parking areas and parking garages should be recessed or placed to the rear of buildings. Larger setbacks of up to 20 feet should be permitted for streetside outdoor cafes and small plazas in core commercial area. Anchor tenants, such as supermarkets and drug stores, should be exempt from the bulk of this requirement, but should still be required to bring at least 30% of one side of a building to the front property line or to the front property setback." On street entryways are encouraged as are secondary entryways from the interior of a block "particularly if a transit stop is located adjacent to the site". As for the commercial area "(s)treet level windows and numerous building entries are required in the core commercial area." (80)

The report recommends that parking lots be located as to not dominate the frontage of pedestrian-oriented streets, interrupt pedestrian routes or negatively impact surrounding neighborhoods. Lots should be located behind buildings or in the interior of a block, whenever possible.

University of North Carolina, et al., National Bicycling and Walking Study: Interim Report, Prepared for the Federal Highway Administration (November 1991).

Untermann, Richard, Linking Land Use and Transportation: Design Strategies to Serve HOVs and Pedestrians, Prepared for the Washington State Transportation Commission, Seattle, Washington (June 1991).

The study examines the potential of "Suburban Centers" which would allow commuters greater choice of travel modes, "with emphasis on improving pedestrian and bicycle safety and creating a sense of 'community' along the arterial." (pg. 6)

Using Highway 99, a major arterial in Seattle, Washington, as a focus of this study, specific locations are evaluated for their accessibility to transit and pedestrian use, Design changes including building orientation are suggested in order to increase alternative modes of travel. Examples of shopping centers are used to show how existing land uses could be infilled or retrofitted to support pedestrian use.

Students from the University of Washington gathered information through observation and interviews with users and developers. Alternative land use and transportation schemes were drawn up for the study area. Following evaluation, the more realistic concepts were refined and applied to the study area for final evaluation.

The Oak Tree Plaza, a regional shopping center servicing the North Seattle community, is cited as amenable to both autos and pedestrians. "All of the buildings are located along the perimeter of the site, instead of in the center or along the back property line. Pedestrians and vehicles share the internal space, with parking tightly organized so cars cannot travel fast. The center is bisected by a well developed pedestrian grid, allowing easy access to and between buildings. Two wide sidewalks cross the parking lot, and roof overhangs protect pedestrians during bad weather. The sidewalk on Aurora (Highway 99) is wide, with street trees, shop windows and pedestrian entries at several points. Shoppers arrive by car, park, and carry out all their errands on foot as parking is limited." (pg. 8)

The report discusses the problems for pedestrian use associated with pedestrian malls. "In general, the retail buildings are set back from the street an average of 300 to 500 feet. Large surface parking lots are typically situated in front of the store, with little attention given to safe pedestrian access from the street. Most parking lots have multiple entries, allowing vehicles to come from several directions, creating confusion and safety problems. Surface lots are typically barren, with little or no landscaping or pedestrian safe meridians. Parking lots of adjacent uses are often separated by curbs, fences, and other barriers making connection between stores difficult for pedestrian and automobile users. Transit stops along the primary street are often inadequate in terms of shelter and proximity to retail." (pg. 21)

The report specifically cites building orientation design to promote pedestrian use. "Orient buildings toward public transportation facilities and not parking lots. Buildings need to be conveniently situated to public transportation as they are to parking lots. Arrange buildings on the site to reduce walking distance between each of the buildings and between the nearest transit facility. Provide covered walkways around and between buildings if possible ... New parking lots

should be located on the sides and to the rear of the buildings with major retail being situated closer to the street." (pg. 21)

Vancouver, City of, Clouds of Change: Final Report of the City of Vancouver Task Force on Atmospheric Change - Volume I, Vancouver, British Columbia (June 1990).

Addresses atmospheric change which threatens the environment. Action oriented strategic plan to reduce vehicle emissions among other urban threats. Chapter 7 discusses land use planning by supporting mixed use, high density, to increase activities in specific areas thereby reducing car use and meeting the overall goal of "reduce(ing) the need for transportation in the City and the Region." Access is determined by proximity rather than transportation alternatives.

VNI Rainbow Appraisal Service, Analysis of the Impact of Light Rail Transit on Real Estate Values, Prepared for the Metropolitan Transit Development Board, San Diego, California (April 1992).

Voith, Richard, Changing Capitalization of CBD-Oriented Transportation Systems: Evidence from Philadelphia, 1970-1988, Federal Reserve Bank of Philadelphia (March 1992).

Focuses on the impact of land use on housing costs.

Voith, Richard, "Transportation, Sorting and House Values, " AREUEA, Vol. 19, No. 2., Federal Reserve Bank of Philadelphia (1991).

Weissman, Steve and Judy Corbett, Land Use Strategies for More Livable Places, The Local Government Commission, Sacramento, California (May 1992).

White Mountain Survey Company, City of Portsmouth N.H. Traffic/Trip Generation Study, Ossipee, New Hampshire (December 1991).

Primary objective is to determine the accuracy of ITE "Trip Generation" manual used to measure suburban areas. Chellman compared two existing traditional neighborhoods - one downtown, the second primarily residential, to determine impact of land use on trip generation and "capture" rates (internalization rates of trips generated). The residential neighborhood generated on average 6.2 trips per day (17% less than predicted using ITE standard land use codes). 17.8% of all trips were bike/walk trips. The downtown study revealed less than 10% walked to work, but also had a lower volume of through traffic than predicted by the ITE standards.

Woodhull, Joel, Calmer, Not Faster: A New Direction for the Streets of L.A., Prepared for the 70th Annual Meeting Transportation Research Board, Washington, D.C. (January 1991).

Thorough discussion of traffic calming measures presents the arguments made both in support of traffic calming and against it. Focus is on street design and traffic impacts. Notes the need for mixed use land patterns and the multi-effort of traffic calming, increased transit capacity and land use as the appropriate direction to take. Recommends a greater focus on the "person-capacity of intersections, rather than the vehicle capacity."

## SITE DESIGN & TRAVEL BEHAVIOR: ARTICLES

Achimore, Alex, "Putting the Community Back into Community Retail," Urban Land (August 1993).

Bernick, Michael, “Can't Walk to Work? Then Walk to the Train,” LA Times (May 4, 1993).

Article looking at the impact of concentrated development in the Bay Area, “particularly higher-density housing, within a quarter mile radius of transit stations, and concomitantly, the discouraging of density development elsewhere in the area ... Surveys show dramatically higher BART ridership among people living within one-quarter of a mile of BART stations than among the general public ... BART ridership among residents of the new transit-based housing developments tops 32%. Further these commuters walk to the station.” “A strong new housing market is assisting BARTs transit-village movement. A 135- unit development opened last August near the El Cerrito del Norte station. Initially, the developer wondered who would want to live near rail. The answer: singles, students at nearby UC Berkeley and 'empty-nesters.' After six months, Del Norte Place is 90% leased.”

Bernick, Michael, “The Bay Area's Emerging Transit-Based Housing,” Urban Land (July 1993).

Provides useful stats re: the impact BART has had on housing vacancy and costs.

Bookout, Lloyd W., “Neotraditional Town Planning: Bucking Conventional Codes and Standards,” Urban Land (April 1992).

Discusses PUD vs. neotraditional zoning.

Bressi, Todd W., “The Neo-Traditional Revolution,” Utne Reader (May/June 1992).

Overview of neo-traditional communities. Focuses on Calthorpe's TOD theory.

Callow, John F., “Impact of Transit Facilities on Land Use,” ITE Journal (January 1992).

Review of the impacts of heavy rail transit systems in Toronto, Washington, D.C., San Francisco, Buffalo, and Atlanta.

Canty, David, “Urban Delight,” Architectural Record (October 1990).

Cervero, Robert, “Maintaining Regional Mobility through Land Use Alternatives,” PTI Journal (July/August 1990).

A comparison of European and American urban land use. “Most Americans want to combine as much of a rural lifestyle as possible with their own urban occupational roles ... Under such a free market, pluralist system, such lifestyle preferences have, not surprisingly, produced less density, auto reliant urban forms.” “The suburbs are not mass transit's natural habitat; transit has historically suffered from low ridership when trip origins and destinations are widely scattered. Clearly, changing travel patterns, combined with what some might call functionally obsolete roadway networks in the suburbs, are giving rise to unprecedented levels of suburban congestion.”

Cervero, Robert, “Jobs-Housing Balancing and Regional Mobility,” APA Journal (Spring 1989).

Cervero, Robert, “Managing the Traffic Impacts of Suburban Office Growth,” Transportation Quarterly, 51, 3 (1984).

Cervero, Robert, “Land Uses and Travel at Suburban Activity Centers,” Transportation Quarterly 45, 4 (19??).

Deakin, Elizabeth, "Prospect," Landscape Architecture (July 1990).

"Building our way out of traffic problems, whether with highways or with transit, is unlikely to offer a long-term solution if the underlying land use patterns we develop are unchanged. Revamping transportation and land use inter-relationship will require considerable thought and experimentation, but the payoff promises to be worth it."

Duany, Andres and Elizabeth Plater-Zyberk, "The Second Coming of the American Small Town," WO (Winter 1992).

The ground breakers for neotraditional/main street design. "The market shows that people are willing to pay several times more to live in the traditional neighborhood development than for a modern townhouse in a typical development."

Dunlop, Beth, "Breaking the Code," Architecture (April 1990).

Review of Duany/Plater-Zyberk neo-traditional design focusing on the need to change comprehensive planning, zoning ordinances, and city code.

Eager, William R., "Accommodating Land Use and Transportation Planning," Land Use in Transition, The Urban Land Institute (1993).

Claims transportation planners need to recognize the changing demands of the market. "No transit alternatives are currently in place to offer better service than the private auto." Supports a real change of land use on a regional level. "We continue to suffer disjointed land use and transportation planning efforts. In some more metropolitan areas, regional transportation plans are being determined before the land use decisions necessary to support them can be made."

Fillip, Janice, "Uptown District, San Diego: Looking at the Future of Mixed-Use Development in American Cities," Urban Land (June 1990).

Reviews the success of mixed use, high density in the Uptown District on San Diego.

Fulton, William, "Winning Over the Street People," Planning (May 1991).

Discusses the Laguna West development and the problems in implementing the concepts to meet existing code.

Gibbs, Robert, "Urbanizing: A Primer on How Downtowns Can Compete with Retail Malls and Strip Centers," Planning and Zoning News (November 1992).

Seven step plan to revitalize the retail of downtown. Supports the equivocation of no parking, no customer, as well as diagonal parking over parallel parking. "Unfortunately, many downtown redevelopments of the sixties and seventies ended up reducing the total parking count by converting head-in diagonal parking to parallel parking. This was a serious mistake because it reduced the number of parking stalls on Main Street and the likelihood that shoppers would find a place to park."

Gilson, James and Michael Francis, "Planning for Joint Development in Los Angeles," Urban Land (June 1993).

Gurwitt, Rob, “Reinventing the Village,” Governing (November 1992).

A Laguna West profile detailing the difficulty of convincing retailers of the potential for success. “In the end, the retail side - which is, after all, crucial to the notion of a walkable community, will probably have to wait until there are enough people living in these places to support it.”

Hillman, Mayer, “Reconciling Transport and Environmental Policy Objectives: The Way Ahead at the End of the Road,” Public Administration, Vol. 70, Royal Institute of Public Administration, London, England (Summer 1992).

“Attention is focused on public transport as the only alternative to the car whereas, in fact, journeys on foot are even today three times as frequent as those by all public transport modes combined.” “Current policy indicates a poor appreciation of the link between land use planning and the adoption of patterns of activity increasingly dependent on the car: low density housing settlements and out-of-town shopping centers generate far more traffic than their denser urban counterparts. (T)hese types of development can only rarely be economically served by public transport. They discourage self-sufficiency, independence and containment - key elements of liveable cities.”

Hiss, Tony, “Reflections: Encountering the Countryside - II,” The New Yorker (August 28, 1989).

Howe, Deborah and William Rabiega, “Beyond Strips and Centers: The Ideal Commercial Form,” APA Journal (Spring 1992).

Survey results of planners and shoppers on their perception of strip malls vs. shopping centers. Shopping centers preferred by both. However, a better definition of “center” is needed to validate survey.

Lowe, Marcia D., “Out of the Car, Into the Future,” WorldWatch (November/December 1990).

Lowe, Marcia D., “Reclaiming Cities for People,” WorldWatch (July/August 1992).

Details international case studies of successful urban pedestrian oriented streetscapes, what the U.S. could learn from them and how to implement design here. “The amount of space devoted to automobile parking is one of the most important determinants of a city's dependence on cars. Extravagant parking facilities also have unintended negative effects. Massive expanses of parking create a hostile setting and deter people from walking by creating long distances between buildings. And the lure of a convenient parking space leads many people to choose driving, even where the finest public transport is available.” Lowe states that the cities with high transit use (Copenhagen, Geneva) place car parking underground or behind buildings. “This saves space, helps keep the cities lively and compact, and makes buildings more accessible to people on foot.”

Lowe, Marcia D., “How to Make Cities More Humane,” World Watch (May/June 1992).

International look at “bringing the village back to the city,” which “involves the major changes in the use of public space.” “Better planning and more compact urban design can create city spaces that are friendly and safe enough for people to gather and enjoy themselves. A recent report on the world's 100 largest cities, found that Hong Kong -- the most densely populated city, with 403 people per hectare -- has fewer murders per capita than all but 11 of the other 99 cities. Low-

density American cities like Los Angeles, Houston, and Miami are among those with the highest murder rates."

Lyman, Francesca, "Reinventing Suburbia: A New Breed of Architect Wields an Awl Against Sprawl," The Amicus Journal (Spring 1992).

McHenry, Thomas, "The Land Use/Air Quality Connection," Los Angeles Lawyer (January 1990).

Miller, Richard, "Joint Development at Ballston Metro Center," Urban Land (June 1993).

Oppenheimer-Dean, Andrea, "Their Town," Historic Preservation (May/June 1992).

Profile of Duany/Plater-Zyberk.

Oppenheimer, Todd, "Creative Alternatives to Urban Sprawl: A Tale of Two Cities," Utne Reader (March/April 1989).

Praises the efforts of Portland, Oregon and Davis, California in growth management implementation. Davis "restricts the size of its shopping centers to eight acres. The idea behind this rule is to create commercial centers that are oriented to each neighborhood, rather than expansive regional monoliths that will compete with each other and feel inhuman to shoppers."

Renner, Michael, "Rethinking the Auto: Blueprints for a Cleaner, Greener Future." Utne Reader (March/April 1989).

Richardson, S., and P. Gordon, "Counting Non-Work Trips: The Missing Link in Transportation, Land Use and Urban Policy," Urban Land 49, 9 (September 1989).

Rybczynski, Witold, "The New Downtowns," The Atlantic Monthly (May 1993).

History of malls. Theorizes that malls are becoming the new town centers. With the introduction of some form of permanent housing, malls would be truly urban.

Schaeffer, Robert, "Car Sick: Automobiles Ad Nauseam" Greenpeace (May/June 1990).

Overview of the auto industry and its historic/successful effort to monopolize the transportation system.

Smith, Bruce, "Anxiety as a Cost of Commuting to Work," Journal of Urban Economics (March 1991).

Analyzed data from a 1986 Modal Choice Inter-view Survey of Columbus, Ohio to determine the psychological factors of commuting to work. Found that an increase of $100 per week for auto commuting reduced auto use by 17%. But an increase of $100 per week for public transit commuting would decrease public transit use by 35%. The opportunity costs of bus ridership are its greatest enemy.

Stringham, M., "Travel Behavior Associated with Land Uses Adjacent to Rapid Transit Stations," ITE Journal 52, 4 (1982).

Swan, Marc, "A Tradition Begins ... Mashpee Commons Brings Community to a Center," Cape Cod Life (undated).

Untermann, Richard, "Streets are for Sharing," Landscape Architecture (July 1990).

Discusses the need for change in street design. Gone from "attractive, livable spaces shared by cars and pedestrians to their current use as channels for the high volume of motor vehicles..." "Defining streets with buildings or trees to form a continuous border reinforces the structure of our cities. Streets that are bordered by parking lots, with buildings set back from the street and sidewalks interrupted by wide driveways, will not attract many walkers."

Walmsley, D.A. and K.E. Perret, The Effects of Rapid Transit on Public Transport and Urban Development: Summary Report, Transportation and Road Research Laboratory Berkshire, England (1991).

Winbum IV, William A, "The Development Realities of Traditional Town Design" Urban Land (August 1992).

Article written by a Kentlands development team member. Discusses the problems of developing a traditional neighborhood development (TND) within the policy framework of a PUD. "The real resistance to the concept of a TND is found in the infrastructure of the development industry: homebuilder, lawyers, fire marshals, local transportation officials, financiers, school boards, local governments, utilities, the postal service, and so forth."

Yamanaka, Hideo and Michiyasu Odani, "Measures for Traffic Calming in Residential Areas," The Wheel Extended: A Toyota Quarterly Review, Toyota. No. 73 (undated).

Zolton, Marc, "No Exit: How politics, not Transportation Policy is Driving the Western Bypass," Willamette Week (June 17-June 23, 1993).